

REMARKS/ARGUMENTS

Applicant thanks the Examiner for the very thorough consideration given the present application.

Claims 1-9 are now present in this application. Claims 1, 2 and 7 are independent. Claims 1, 2 and 7 have been amended. Reconsideration of this application, as amended, is respectfully requested.

Reasons for Entry of Amendments

At the outset, it is respectfully requested that this Amendment be entered into the Official File in view of the fact that the amendments to the claims automatically place the application in condition for allowance.

In the alternative, if the Examiner does not agree that this application is in condition for allowance, it is respectfully requested that this Amendment be entered for the purpose of appeal. This Amendment reduces the issues on appeal by placing the claims in compliance with 35 U.S.C. § 112, 1st Paragraph, and by addressing the Examiner's objections to the claims. This Amendment was not presented at an earlier date in view of the fact that Applicant did not fully appreciate the Examiner's position until the Final Office Action was reviewed.

Priority Under 35 U.S.C. § 119

The Examiner still has not acknowledged Applicant's claim for foreign

priority under 35 U.S.C. § 119, and receipt of the certified priority document. Acknowledgment thereby by the Examiner in the next Office Action is respectfully requested.

Drawings

Applicant still has not received a Notice of Draftperson's Patent Drawing Review PTO-948 or other indication of whether or not the formal drawings have been approved by the Draftsperson. Since no objection has been received, Applicant assumes that the drawings are acceptable and that no further action is necessary. Confirmation thereof in the next Office Action is respectfully requested.

Claim Objections

The Examiner has objected to claims 2-9 asserting that the phrase "such that adjacent pixels have a complementary color relationship" as recited in claims 2 and 7 is confusing and indefinite since it is not clear what these pixels are. The Examiner further asserts that the claims fail to give proper antecedent basis for these pixels, and it is not clear if these pixels are referring to the pixels for the display device or for the color barriers. The Examiner further asserts that claims 2 and 7 fail to disclose the structural and logical relationship between the display device and the color barrier (also the light

scattering device in claim 7). The Examiner asserts that this makes the claims incomplete, confusing and indefinite.

In response to the Examiner's objections, Applicant has amended independent claims 2 and 7 in order to correct the deficiencies in claims 2-9 pointed out by the Examiner. Reconsideration and withdrawal of this objection are respectfully requested.

First Rejection Under 35 U.S.C. § 112, First Paragraph

Claims 2-9 stand rejected under 35 U.S.C. § 112, first paragraph. This rejection is respectfully traversed.

The Examiner states that the original specification and claims fail to teach how the stereoscopic image can be observed by simply having a variable color barrier.

In the present Office Action, the Examiner asserts the following:

1. There is **no difference** in the function of the color barrier when in response to the different voltage, which therefore **fails** to establish the enablement of the stereoscopic view and plane view.
2. By having a color barrier with alternatively arranged first color filters and second color filters **will not be able to achieve** either the stereoscopic view or the plane view.
3. The video signals displayed on the display device **must** have a combined video signal at each pixel of the display device so that **each pixel** has **both** the right eye image and left eye image signal, yet with **different color-coding**.

4. The Applicant fails to explain how the color barrier is switched in such a way that only the right eye image will go to the right eye and the left eye image will go to the left eye when stereoscopic mode is selected, and how both right eye image and left eye image will go to **both eyes** when plane mode is selected.

In response to the Examiner's positions, the Applicant first notes that the color barrier is not claimed in isolation of the other elements. Rather, it is the combination of the claimed elements that achieves either plane or stereoscopic display.

The Examiner now refers to paragraph 52 of the Applicant's original specification, which provides that a liquid crystal cell transmits or blocks a certain wavelength or color of light depending on a level of voltage applied thereto (see Figs. 5 and 6) either a red, green e.g., in an electrically controlled birefringence (ECB) mode.

Paragraph [0056] of the specification clearly provides that the multimode stereoscopic picture display strategy takes advantage of a liquid crystal property modulating a wavelength of a light depending on an applied voltage, to thereby display both the plane picture and the stereoscopic picture. Therefore, with reference to (3) above, it should be clear that different color-coding is enabled depending on an applied voltage. Therefore, the other Examiner's concerns are found in the properties and arrangement of other claimed elements. To this end, the Applicant refers to the arrangement provided in Fig. 6.

In conjunction with Fig. 6, paragraph [0060] of the specification provides:

The variable color barrier 58 includes first variable filters 58L1 and 58R1 and second variable filters 58L2 and 58R2 that are alternated with each other. The first and second variable filters 58L1, 58R1, 58L2 and 58R2 are supplied with different voltages depending on a plane mode or a stereoscopic mode. ***In the plane mode, the first and second variable filters 58L1, 58R1, 58L2 and 58R2 transmit all wavelength bands of lights*** inputted from the first and second pixels P1 and P2 of the display unit 54 toward an observer. ***In the stereoscopic mode, the first variable filters 58L1 and 58R1 transmit only red lights r1 and r2 inputted from the first and second pixels P1 and P2 toward an observer while shutting off light with other wavelength bands.*** In other words, the first variable filters 58L1 and 58R1 serve as red filters in the stereoscopic mode. On the other hand, the second variable filters 58L2 and 58R2 transmit green light g1 and g2 and blue light b1 and b2 inputted from the first and second pixels P1 and P2 toward an observer in the stereoscopic mode. In other words, the second variable filters 58L2 and 58R2 serve as a cyan filter in the stereoscopic mode. ***A distance between the display unit 54 and the variable color barrier 58 and the sizes of variable filters 58L1, 58R1, 58L2 and 58R2 is appropriately established in consideration of a distance between an observer and the variable color barrier 58*** such that a red light r1 from the first pixel P1 and a green light g1 and a blue light b1 from the second pixel P2 are incident to the left-eye EL of an observer while a red light r2 from the second pixel P2 and a green light g2 and a blue light b2 from the first pixel P1 are incident to the right-eye ER of an observer. ***Accordingly, an observer recognizes an image photographed by the first camera 52a through his left-eye EL and an image photographed by the second camera 52b through his right-eye ER, so that he can view an object in a stereoscopic manner.***

This portion, and also other portions of the disclosure describe how a size of the filters, a distance between the display unit and the color barrier and consideration of a distance between an observer and the color barrier (in combination with other claimed elements) enable both plane and stereoscopic

views. The disclosed principles, while clever, are not so complicated that they are beyond the grasp of those skilled in the art.

Therefore, with respect to items 1-4 above, there are no deficiencies in the disclosure. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Second Rejection Under 35 U.S.C. § 112, First Paragraph

Claims 7-9 stand rejected under 35 U.S.C. § 112, first paragraph. This rejection is respectfully traversed.

The Examiner states that the specification and the claims fail to teach how the stereoscopic image can be observed by having a color barrier in the light scattering device. Claim 7, according to the Examiner, fails to disclose an operable device since the image displaying apparatus as described therein is not capable of providing a stereoscopic image display.

As provided above, the light-scattering device is not claimed in isolation, but stereoscopic or plane viewing is enabled by a combination of the claimed elements. Further, the Applicant submits that the properties of the light scattering device and are used in conjunction with other elements to achieve stereoscopic or plane view.

To this end, the Applicant refers to Fig. 12. In conjunction therewith, paragraph [0086] of the specification explains that a variable light-scattering device changes a scattering characteristic of light inputted from the display

unit in accordance with an applied voltage level. The Applicant submits that the necessary details of the operation are provided in paragraphs [0087] – [0093] of the specification. Again, while clever, these arrangements are not beyond the grasp of those skilled in the art. Reconsideration and withdrawal of this rejection are thus respectfully requested.

Rejections Under 35 U.S.C. § 103

Claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,315,377 to Isono et al. ("Isono"). This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

While not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the instant application, Applicant respectfully submits that independent claim 1 has been amended to recite a combination of elements in a method of displaying a multi-mode stereoscopic image, including selectively transmitting a left-eye picture and a right-eye picture of a picture displayed on the display unit by an application of *first and second voltages having a different voltage level*, such that the left-eye picture and the right-eye picture are incident to the left eye and the right eye of an observer in the stereoscopic mode, while transmitting the picture displayed on the display unit toward the observer as it is *by application of a third voltage other than the first*

and second voltages in the plane mode.

Applicant respectfully submits that this combination of elements as set forth in independent claim 1 is not disclosed or made obvious by the prior art of record, including Isono.

Particularly, Isono merely discloses adjusting barrier strips to appear or disappear according to whether they are driven. In a 3D mode, the barrier strips appear when the drivers are driven. In a 2D mode, drivers are not driven, and consequently, the barrier strips disappear. In other words, Isono teaches displaying the 3D image through open areas (portions without a barrier) and barrier strips which appear during driving (Isono, Col.6, line 51- 59). Isono does not teach two different voltage levels for driving. Further, Isono does not teach a picture being transmitted as it is by applying a third voltage. Rather, in Isono, a picture is transmitted as it is by not applying a driving voltage at all.

Therefore Isono fails to teach or suggest a combination of elements in a method of displaying a multi-mode stereoscopic image, including selectively transmitting a left-eye picture and a right-eye picture of a picture displayed on the display unit by an application of first and second voltages having a different voltage level, such that the left-eye picture and the right-eye picture are incident to the left eye and the right eye of an observer in the stereoscopic mode, while transmitting the picture displayed on the display unit toward the observer as it is by application of a third voltage other than the first and second voltages in the plane mode, as recited in independent claim 1, as amended.

Reconsideration and withdrawal of this art grounds of rejection are thus respectfully requested.

Claims 2-9

Claims 2-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,751,479 to Hamagishi et al. ("Hamagishi"). This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

While not conceding to the appropriateness of the Examiner's rejection, the Applicant respectfully submits that independent claim 2 has been amended to recite a combination of elements in a multi-mode stereoscopic image displaying apparatus including, *said barrier having a plurality of first color filters and a plurality of second color filters alternated with each other in order to have a complementary color relationship*, and independent claim 7 has been similarly amended to recite a combination of elements in a multi-mode stereoscopic image displaying apparatus, including a color barrier having first color filters and second color filters *for selectively transmitting a left-eye picture and a right eye-picture, such that the left-eye picture and the right-eye picture are incident to the left eye and the right eye of an observer, the first color filters and the second color filters being alternated with each other in order to have a complementary color relationship*. Applicant respectfully submits that these

combinations of elements as set forth in independent claims 2 and 7 are not disclosed or made obvious by the prior art of record, including Hamagishi.

With regard to independent claims 2 and 7, Hamagishi fails to teach or suggest a first color filter and a second color filter having a complementary relationship, or selectively transmitting a left-eye picture and a right-eye picture such that the left-eye picture and the right-eye picture are incident to the left eye and the right eye of an observer.

With regard to claim 7, Hamagishi also fails to teach a light-scattering device being arranged between the display device and the color barrier.

Therefore, Hamagishi fails to teach or suggest the above-recited combinations including *said barrier having a plurality of first color filters and a plurality of second color filters alternated with each other in order to have a complementary color relationship*, as recited in independent claim 2, as amended, or a color barrier having first color filters and second color filters *for selectively transmitting a left-eye picture and a right eye-picture, such that the left-eye picture and the right-eye picture are incident to the left eye and the right eye of an observer, the first color filters and the second color filters being alternated with each other in order to have a complementary color relationship*, as recited in independent claim 7, as amended.

Claims 3-6 and 8-9 depend either directly or indirectly on independent claims 2 and 7. Since Hamagishi fails to teach or suggest the above-recited features of independent claims 2 and 7, Hamagishi cannot render claims 2-9

obvious to one of ordinary skill in the art. Reconsideration and withdrawal of this art ground of rejection are respectfully requested.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Percy L. Square, Reg. No. 51,084, at (703) 205-8034, in the Washington, D.C. area.

Prompt and favorable consideration of this Amendment is respectfully requested.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fee required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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